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# AREI UPDATES: Farm Machinery

## Updates on Agricultural Resources and Environmental Indicators

Natural Resources and Environment Division  
Economic Research Service, U.S. Department of Agriculture

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Number 1

### Farm Machinery Purchases Up From a Year Ago

- Unit purchases of tractors, combines, and other farm machinery continued to increase in 1994, the second year in a row.
- Several factors that have a positive effect on demand were up in 1994, including farm income, cash farm receipts, farm business assets, and farm equity.
- Farm machinery manufacturing plants were operating at 84 percent of capacity in 1994, compared with 76 percent in 1993.

Purchases of farm tractors totaled 63,200 units in 1994, compared with 57,800 units in 1993. Combine purchases were up 8 percent from 1993.

Several factors helped push machinery sales upward in 1994. Cash receipts and farm income were up. The value of farm business assets increased significantly, pushing up farm equity, which translates into more collateral for farm equipment loans. Interest rates for farm machinery held steady from 1993 through 1994, helping to encourage demand. Idled acres were down, meaning more acres were planted, which also helped farm machinery demand.

Prices of trucks, tractors, combines, and other farm machinery increased significantly through the first 10 months of 1994. Machinery prices increased about 6 percent, versus a 1-percent general rise in prices of farm production items, interest, taxes, and wage rates. Price increases tend to have a dampening effect on demand for farm machinery.

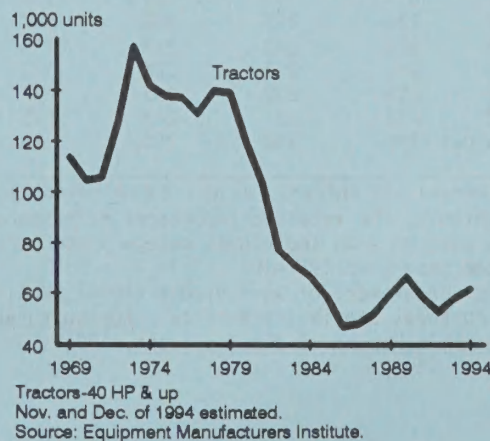
Capital depreciation continued to exceed capital expenditures in 1994. A factor likely contributing to capital depletion (depreciation exceeding expenditures) is the trend toward conservation tillage, which involves fewer trips over the field and less use of tractors and equipment. Fewer trips means machinery lasts longer and therefore is replaced less often, reducing expenditures.

Other farm machinery statistics appear in *Agricultural Resources and Environmental Indicators*, AH-705, Economic Research Service, Dec., 1994. For further information about farm machinery, contact Marlow Vesterby, (202) 219-0422.

#### About AREI UPDATES

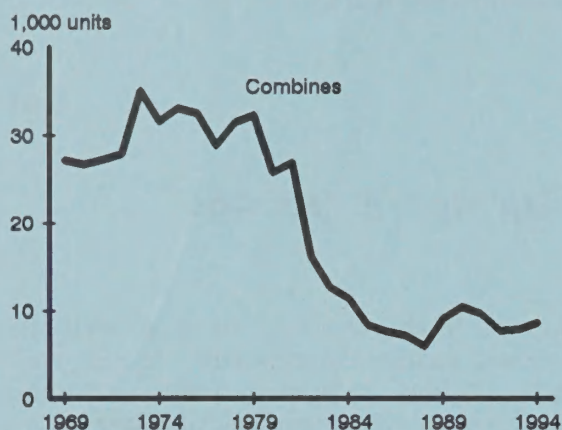
AREI UPDATES (formerly RTD UPDATES) is a periodic series which supplements and updates information in the annual report *Agricultural Resources and Environmental Indicators* (AREI). These UPDATES report recent data from surveys of farm operators and others knowledgeable about changing agricultural resource conditions, with only minimal interpretation or analysis. Please contact the individual listed at the end of the text for additional information about the data in this UPDATE. If you would like to be added to the mailing list or have other questions about AREI UPDATES or the annual AREI report, contact Richard Magleby, (202) 219-0436.

#### Farm tractor sales





### Combine sales

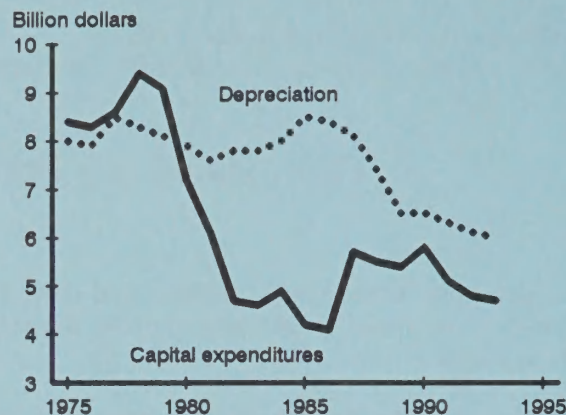


Self-propelled combines.

Nov. and Dec. of 1994 estimated.

Source: Equipment Manufacturers Institute.

### Machinery capital investment and capital depreciation



Adjusted to 1975 dollars. 1994 estimated.

Source: National Financial Summary, ERS, 1994.

Prices paid for trucks, tractors, and other farm machinery<sup>1</sup>

Year	Trucks and autos	Tractors and self-propelled machinery	Other machinery	Production items, interest, taxes, and wage rates	Gross domestic product price deflator
----- 1977=100 -----					1987=100
1980	123	136	132	139	72
1981	143	152	146	151	79
1982	159	165	160	158	84
1983	170	174	171	159	87
1984	182	181	180	161	91
1985	193	178	183	156	94
1986	198	174	182	150	97
1987	208	174	185	152	100
1988	215	181	197	160	104
1989	223	193	208	167	109
1990	231	202	216	172	113
1991	244	211	226	172	118
1992	258	219	233	173	121
1993	272	227	243	178	124
1994 Oct.	290	240	258	180	126

<sup>1</sup>Indexes are current, actual (undeflated) prices, weighted by the relative importance of component items that make up each individual category and converted to the base year 1977=100

U.S. Department of Agriculture (1994), National Agricultural Statistics Service. Agricultural Prices. Economic Report of the President, 1994.

Plant capacity, farm machinery and equipment industry (fourth quarter)

Year	Capacity utilization rates <sup>1</sup>
----- Percent -----	
1982	31
1983	38
1984	41
1985	37
1986	24
1987	43
1988	54
1989	66
1990	66
1991	64
1992	68
1993	76
1994	84

<sup>1</sup>For 1989 and later, percent of full production, for 1988 and earlier, percent of "practical capacity." 1993 and 1994 estimated.

Source: U.S. Department of Commerce, Bureau of the Census (1994), Survey of Plant Capacity, MQ-C1(92)-1 and Federal Reserve.

## Domestic farm machinery unit sales

Machinery category	1987	1988	1989	1990	1991	1992	1993	1994	Change 92-93	Change 93-94
	<u>Units</u>								<u>Percent</u>	
Tractors:										
Two-wheel-drive										
40-99 hp	30,700	33,100	35,000	38,400	33,900	34,600	35,500	39,100	3	10
100 hp and over	15,900	16,100	20,600	22,800	20,100	15,700	19,000	20,400	21	7
Four-wheel-drive	1,700	2,700	4,100	5,100	4,100	2,700	3,300	3,700	22	12
All farm wheel tractors	48,300	51,900	59,700	66,300	58,100	53,000	57,800	63,200	9	9
Self-propelled combines	7,200	6,000	9,100	10,400	9,700	7,700	7,900	8,500	3	8

Source: Equipment Manufacturers Institute, Monthly Flash Reports.

## Trends in U.S. farm investment expenditures and factors affecting farm investment demand

Item	1989	1990	1991	1992	1993P	1994F
	<u>\$ billion</u>					
Capital expenditures:						
Tractors	2.9	3.1	2.5	2.7	2.7	2.7-3.0
Other farm machinery	5.1	5.6	5.4	5.1	5.5	5.4-5.9
Total	8.0	8.7	7.9	7.8	8.2	8.1-8.9
Tractor and machinery repairs	4.5	4.4	4.5	4.2	4.5	4.3-4.7
Trucks and autos	2.6	2.6	2.4	2.3	2.5	2.4-2.7
Farm buildings <sup>1</sup>	2.5	2.8	2.8	2.4	3.3	3.0-3.5
Factors affecting demand:						
Interest expenses	13.2	13.4	12.1	11.2	10.8	10-12
Total production expenses	144.0	151.3	151.2	150.1	158.0	159-165
Farm business assets:						
Real estate assets <sup>2</sup>	615.7	628.2	623.2	633.1	656.0	677-687
Nonreal estate assets <sup>2</sup>	214.1	220.1	219.0	228.1	230.0	
Farm business debt <sup>2</sup>	137.2	137.4	138.9	139.3	142.0	141-145
Equity <sup>2</sup>	692.4	710.9	703.4	721.9	744.0	771-781
Agricultural exports <sup>3</sup>	39.6	40.2	37.6	42.4	42.6	43
Cash receipts	161.2	170.0	168.8	171.2	175.1	177-185
Net farm income	46.9	46.9	41.1	50.1	43.4	47-51
Net cash income	54.7	55.1	53.2	57.4	58.5	53-57
Direct government payments	10.9	9.3	8.2	9.2	13.4	8-10
	<u>Million acres</u>					
Idled acres <sup>4</sup>	60.8	61.6	64.5	54.9	59.8	49
	<u>Percent</u>					
Real prime rate <sup>5 6</sup>	6.5	5.7	4.7	3.5	3.8	4.8
Nominal farm machinery and equipment loan rate <sup>6</sup>	12.8	12.3	11.3	9.3	8.7	8.6
Real farm machinery and equipment loan rate <sup>6</sup>	8.4	8.0	7.5	6.5	6.5	5.7
Debt-asset ratio <sup>7</sup>	16.5	16.2	16.5	16.2	16.3	15-16

<sup>1</sup>Includes service buildings, structures, and land improvements. <sup>2</sup>Calculated using nominal dollar balance sheet data, excluding farm households, for December 31 of each year. <sup>3</sup>Fiscal year. <sup>4</sup>Includes acres idled through commodity programs and acres enrolled in the Conservation Reserve Program. <sup>5</sup>Deflated by the GDP deflator. <sup>6</sup>Average annual interest rate. From the quarterly sample survey of commercial banks: Agricultural Financial Databook, Board of Governors of the Federal Reserve System (FRS 1994). 1994 is for 2nd qtr. <sup>7</sup>Outstanding farm debt divided by the sum of farm real and nonreal estate asset values.

P=preliminary. F=forecast.

Sources: U.S. Department of Agriculture, Economic Research Service. Agricultural Income and Finance, Situation and Outlook Report. AIS-54. Sept.; and Agricultural Outlook. AO-213. Nov. 1994.



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